

REMARKS

In this Amendment, Applicant has amended claims 7, 27, 29, 30, and 45 to more clearly define the invention, correct typographical errors, and recite subject matter inherent in the original words of the claims. Claims 7-10 and 27-70 are currently pending in this case, of which claims 31-44, and 49-70 have been withdrawn by the Examiner. Claims 7-10, 27-30, and 45-48 are currently being examined.

Applicant believes an in-person interview is necessary to advance the lengthy prosecution of this case. Applicant's representative will contact the Examiner to schedule an interview after filing this Amendment. The Examiner is always welcome to contact the Applicant's representative at 571-203-2748.

In the Office Action, the Examiner withdrew the 35 U.S.C. § 101 rejections of claims 7-10, 27-30, and 45-48 and rejected claims 7-10, 27-30, and 45-48 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,070,151 to Frankel ("*Frankel*") in view of U.S. Patent No. 6,208,738 to Goldenfeld et al. ("*Goldenfeld*"), which the Examiner cites for the first time.¹ Applicant traverses these rejections.

To establish a *prima facie* case of obviousness under 35 U.S.C. § 103, the Examiner must factually demonstrate that (1) *Frankel* and *Goldenfeld* disclose or suggest each and every element recited in the claims; (2) there is a reasonable expectation of success for any modification of the teachings of *Frankel* and *Goldenfeld*, and (3) there exists some suggestion or motivation, either in the references or in the knowledge generally available to one of ordinary skill in the art, to modify the references

or combine the teachings of *Frankel* and *Goldenfeld*. See M.P.E.P. §§ 2142, 2143 (8th ed., August 2005 rev.). Furthermore, each of these requirements must be found in the prior art – not in Applicant’s own disclosure. See *id.* For at least the reasons stated below, Applicant traverses the section 103 rejections because the Examiner has failed to factually demonstrate that *Frankel* and *Goldenfeld* disclose or suggest each and every element recited in the claims and that these references may be properly combined under 35 U.S.C. § 103.

Independent Claims 7, 27, and 45

Independent claim 7 recites, among other things, a data processing system, comprising a processor adapted to: analyze risk elements of interest-rate derivative components and mortgage pool components; develop plans for structuring securities that include cash flows from selected interest-rate derivative components and selected mortgage pool components in combination, such that each plan overcomes an artificial leverage limitation; validate a securities structuring plan and initialize files for securities to be issued under the validated plan; and administer securities issued under the validated plan.

Among other things, *Frankel* does not teach or suggest “securities that include cash flows from selected interest-rate derivative components and selected mortgage pool components in combination,” as recited in claim 7. *Goldenfeld* does not cure this deficiency.

1 Applicant declines to agree with any characterizations of the teachings of the references or meanings of the claims made in the Office Action. The references and claims speak for themselves.

As explained in Applicant's previous Response, *Frankel* teaches a system implementing a method of restructuring mortgage-backed assets (the "underlying securities" or "collateral") to create new mortgage-backed securities (the "structured securities"). (Abstract, col. 5, line 53 –col. 6, line 9). *Frankel's* system measures the present value of the underlying securities' interest and principal cash flows under varying circumstances and uses user-provided input to allocate the cash flows to the structured securities. (Col. 3, line 65 - col. 4, line 12). *Frankel* teaches that the new structured securities (REMICs) are created with two tiers of underlying mortgage-related securities. (Col. 4, lines 27-48). The first tier consists of variable-rate underlying securities and the second tier consists of two interest-only securities (each an "IO") and two principal-only securities (each a "PO"), or combinations of these IOs and POs, backed by the variable-rate, first-tier securities. (Col. 5, line 64 – col. 10, line 32). Assuming that the variable-rate, first-tier securities accrue interest at different levels of an index, the *Frankel* system allocates the principal and interest of the variable-rate, first-tier, collateral securities among the interest-only and principal-only second-tier, structured securities so as to maximize the present value of these cash flows. (Col. 3, line 54 - col. 4, line 16).

Frankel teaches that the collateral for the new structured security must be limited to mortgages and mortgage-backed securities ("MBS") that qualify as REMIC assets and describes formulae qualifying the structured securities as REMIC regular interests. (Abstract, col. 2, lines 16-18; col. 6, lines 3-9; col. 10, line 33 – col. 17, line 23). Accordingly, the aggregate cash flow of the collateral must be identical to that of the structured securities. (Col. 2, lines 1-9; col. 16, lines 58-65; Fig. 7). Thus *Frankel's*

structured security uses cash flows solely from mortgage-backed securities, necessarily making it subject to the artificial leverage limitation imposed by using only mortgage-backed securities as collateral. This structure suffers from one of the exact problems that the present invention solves.

For example, as disclosed in relation to one embodiment of the present invention described on pages 12-21 of the present application:

The traditional structure requires that all interest payable on F[loat] Class come from the underlying SUP[porting] cash flow, no matter how high the F Class interest rate might be and no matter how unlikely it might be that interest rates ever would reach that level. Under this artificial limit, the SUP interest, at the rate of 6.5%, must be sufficient to pay F Class interest at its maximum rate of 8.5%. The only way to accomplish this is to limit the proportion of the SUP principal that is allocated to F Class so that: $(F \text{ Class principal}) \times 8.5\% = \text{all available interest} = (\text{SUP principal}) \times 6.5\%$. This equation leads to the maximum F Class principal of $(6.5\%/8.5\%) \times \$100,000,000 = \$76,470,588$ and the leverage of 3.25.

(Application at 16, lines 22-32; *see also* Figs. 2 and 3 and related text). In other words, because the cash flows for the interest payment on the conventional floating-rate securities (F Class) come only from the cash flows of one class of the underlying mortgage-backed securities (the SUP class, e.g., a pool of mortgage loans paying 6.5% as shown in Fig. 2), the worst-case interest payment of the F Class principal must be small enough to be covered by the cash flows from the SUP Class supporting mortgage-backed securities. Thus, the principal amount of the conventional F Class floating-rate securities (the leverage of the F Class) is mathematically limited by the ratio of the worst-case F Class interest rate to the SUP Class interest rate (e.g., 6.5% / 8.5% as shown in Fig. 2), because the entire cash flow to pay the worst-case F Class interest rate comes only from the SUP Class principal.

As disclosed in relation to one embodiment of the invention described on pages 12-21 of the present application, the problem of a leverage limitation on the size of the Floater Class is overcome by using cash flows from the SUP class, containing mortgage-backed security components, in combination with cash flows from a new source--an interest rate derivative instrument component--to cover the worst-case interest payment of the F Class.

The exemplary EFC [Efficient Floater Class] Series structure displayed in Figure 3 overcomes the artificial limitation on the F/S Class leverage shown in Figure 2. The EFC Series shown in Figure 3 issues EF Class with the same cash flow as F Class. However, EF Class is funded in part with SUP cash flow (block 3-12) and in part with a interest-rate derivative instrument paid through a Derivative Account (block 3-02). The integration of Derivative Account 3-02 into the Series allows the SUP leverage to be increased from 3.25 to 13.

(Application at 17, lines 6-11; *see also* Figs. 2 and 3 and related text). The securities taught by *Frankel* suffer from the leverage limitation problem because they rely solely on mortgage-backed securities for cash flow, and neither *Frankel* nor *Goldenfeld* teach or suggest anything remotely related to the claimed invention using "securities that include cash flows from selected interest-rate derivative components and selected mortgage pool components in combination," as recited in claim 7.

In addition, as explained in detail in the previous Response, which is incorporated herein by reference, *Frankel* does not teach or suggest several other elements recited in claim 7, contrary to the Examiner's assertions. For example, *Frankel* does not teach or suggest a plan that overcomes an artificial leverage limitation because *Frankel's* securities comply with the leverage limitations. *Goldenfeld* does not cure this deficiency.

Further, as explained in detail in the previous Response, *Frankel* does not teach or suggest administering the securities issued under a plan according to claim 7 because *Frankel's* securities do not conform to any plan to overcome an artificial leverage limitation; for example, by administering combined cash flows from interest-rate derivative components with the cash flows of mortgage pool components (such as variable-rate REMIC securities) placed in a grantor trust. *Goldenfeld* does not cure this deficiency.

In the Office Action, the Examiner admits that *Frankel* does not teach analyzing interest rate derivative components as recited in claim 7. (Office Action at 3). *Frankel* also does not teach “securities that include cash flows from selected interest-rate derivative components and selected mortgage pool components in combination,” as recited in claim 7. The Examiner relies on *Goldenfeld* for disclosing these features. (Office Action at 3, 5, 6).

Specifically, the Office Action asserts that *Goldenfeld* “demonstrates that derivatives and MBS’s can be used together for a single purpose” (Office Action at 3, 6) and that “combining the two types of securities [interest-rate derivative components and mortgage pool components] has been contemplated in the prior art” (Office Action at 5). Applicant respectfully submits that the Examiner is mistaken about *Goldenfeld's* teachings in both cases.

Although the Examiner asserts that *Goldenfeld* “demonstrates that that derivatives and MBS’s can be used together for a single purpose,” the Examiner does not provide any supporting facts or citations. And in fact, *Goldenfeld* does not contain any teachings that demonstrate using derivatives and MBS’s together for a single

purpose. Specifically, the Examiner cites to *Goldenfeld* column 1, lines 35-42 as demonstrating use together for a single purpose, but this portion states:

The Monte Carlo method is widely used for many applications in scientific research, applied technology and finance. These include but are not limited to: simulation of the thermal properties of materials such as magnets and superconductors; simulation of the properties of industrially important polymer molecules such as polyethylene and proteins; the valuation of derivative securities such as interest rate derivatives or mortgage-backed securities; the estimation of the risk inherent in a portfolio of diverse financial instruments such as stocks, bonds, commodities and options; and the generation of realistic three-dimensional graphical images.

Goldenfeld teaches here that he considers interest rate derivatives and mortgage-backed securities to be examples of "derivative securities," and that the Monte Carlo method is used for valuation of derivative securities. This does not demonstrate the use of derivatives and MBS's together for a single purpose, as the Examiner asserts, because there is no mention of using the two together or of any purpose for using the two together.

The Examiner cites to *Goldenfeld* column 1, lines 52-56 as demonstrating use together for a single purpose, but this portion states:

In the case of financial applications, such as interest-rate derivatives or mortgage backed securities, the Monte Carlo method is used because the complexity of the transactions and cash flows in the specification of the derivative security in question prevents the use of known alternative, faster methods of derivative valuation.

Here, *Goldenfeld* teaches that the Monte Carlo method is used for valuation of interest-rate derivatives or mortgage backed securities because the complexity of such securities prevents the use of other valuation methods. This does not demonstrate the use of derivatives and MBS's together for a single purpose, as the Examiner asserts,

because there is no mention of using the two together or of any purpose for using the two together.

The Examiner cites to *Goldenfeld* column 4, lines 31-39 as demonstrating use together for a single purpose, but this portion states:

Both public-domain and proprietary non-adaptive sequences have been used to evaluate derivative securities. The results of the use of such sequences have been documented by several authors such as R. E. Caflisch and W. J. Morokoff "Valuation of Mortgage Backed Securities Using the Quasi-Monte Carlo Method," Proc. Stanford Conference on Computational Finance (August 1996); S. Paskov and J. F. Traub "Faster Valuation of Financial Derivatives," Journal of Portfolio Management, 113-120, Fall (1995).

Here, *Goldenfeld* teaches that various types of non-adaptive sequences, which can speed up the Monte Carlo method, may be used for valuation of derivative securities. This does not demonstrate the use of derivatives and MBS's together for a single purpose, as the Examiner asserts, because there is no mention of using the two together or of any purpose for using the two together.

Finally, the Examiner cites to *Goldenfeld* column 9, lines 25-30 as demonstrating use together for a single purpose, but this portion states:

In the present embodiment, the modified valuation program is a valuation program for a financial instrument whose integrand incorporates stochastic models and time variables. The financial instrument may be a portfolio of stocks, bonds, options and commodities, derivatives such as interest rate derivatives or mortgage backed securities etc. The modified valuation program is also proprietary in that the specific method by which the calculation is performed and the resulting information and assumptions are secret and undiscernible to a user by normal means.

Here, *Goldenfeld* teaches that he considers interest rate derivatives and mortgage-backed securities to be examples of a "derivative," which is an example of a "financial instrument," and that a Monte Carlo valuation program may be used for

valuation of derivatives, such as interest rate derivatives and mortgage-backed securities. This does not demonstrate the use of derivatives and MBS's together for a single purpose, as the Examiner asserts, because there is no mention of using the two together or of a purpose for using the two together.

Similarly, *Goldenfeld* contains no teachings that support the Examiner's assertion that "combining the two types of securities [interest-rate derivative components and mortgage pool components] has been contemplated in the prior art" (Office Action at 5). In sum, the entire disclosure of *Goldenfeld* merely mentions that he considers both interest rate derivatives and mortgage-backed securities to be examples of "derivatives," and that the Monte Carlo method is used to provide a valuation for derivatives. (See, e.g., col. 1, lines 37-40). This does not teach or suggest "combining the two types of securities" or the use of such a combination as claimed, because there is no mention whatsoever of any combination of cash flows from a derivative and a mortgage backed security.

Moreover, the *Goldenfeld* reference is nonanalogous art that may not be relied upon under 35 U.S.C. § 103. "In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." In re Oetiker, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992); M.P.E.P. § 2141.01(a)I. The *Goldenfeld* reference relates to systems and methods for providing an interface between two proprietary computer programs without disclosing the internal workings and functionality of the programs. (Title; abstract, col. 1, lines 5-14; col. 6, lines 20-41; col. 8, lines 24-35; etc.). *Goldenfeld* discloses a Monte

Carlo method application for the valuation of financial instruments as one example of a proprietary computer programs that can use the subject interface. *Goldenfeld* is not in the field of Applicant's endeavor because computer program interfacing is obviously not Applicant's field. *Goldenfeld* is not reasonably pertinent to the particular problem with which the present inventors were concerned because computer program interfacing problems are unrelated to solving problems associated with conventional mortgage backed securities, such as a leverage limitation imposed by collateral restrictions. "A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem." In re Clay, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060-61 (Fed. Cir. 1992); M.P.E.P. § 2141.01(a)I. A person trying to solve problems related to maximizing the value of mortgage-backed securities, such as problems caused by a leverage limitation, would not logically look to a reference regarding systems and methods for providing an interface between two proprietary computer programs to help solve mortgage-backed security problems. Accordingly, *Goldenfeld* is nonanalagous art that may not be properly used to establish a prima facie case of obviousness under section 103.

For at least the foregoing reasons, the Examiner has not factually demonstrated a prima facie case of obviousness because neither *Frankel* nor *Goldenfeld* , whether taken alone or in combination, disclose or suggest all the elements recited in independent claim 7, and because *Goldenfeld* is nonanalagous art that may be properly relied upon under section 103. Thus, claim 7 is allowable over the cited references. In addition, independent claims 27 and 45, which recite distinguishing

features similar to those recited in claim 7, are allowable for at least the same reasons. In addition, Applicant submits that claims 8-10, 28-30, and 46-48, which depend either directly or indirectly from claims 7, 27, and 45, are also allowable for at least the foregoing reasons and by reason of depending from an allowable base claim. Accordingly, Applicant respectfully requests that the Examiner withdraw the 35 U.S.C. § 103 rejections of all these claims.

Claim 27

Neither *Frankel* nor *Goldenfeld* teach or suggest several other recited features of claim 27 in addition to those discussed above. For example, the cited references do not teach or suggest “strategically allocating, using at least one data processing system, cash flows from the one or more pools of mortgage securities and cash flows from the one or more pools of interest-rate derivatives to create classes of investment securities which define a new set of investment securities that overcome a leverage limitation, at least one class combining cash flows from the one or more pools of interest-rate derivatives and cash flows from the one or more pools of mortgage securities,” as recited in claim 27.

In the Office Action, the Examiner asserts that *Frankel* discloses the recited “strategically allocating” step of claim 27 at col. 2 line 40 – col. 3, line 21 and col. 3, line 65 – col. 4, line 47. (Office Action at 6). This is incorrect. Col. 2, line 40 to col. 3, line 21 merely describes the limitations under REMIC regulations and the types of securities that can be created within a CMO/REMIC. It does not disclose use of cash flows from non-REMIC assets, such as interest rate derivatives. Indeed, immediately following the portion cited by the Examiner, *Frankel* makes clear that its teachings relate to “meeting

investor objectives within current REMIC regulations.” (Col. 3, lines 25-26). It does not disclose the strategic allocation of cash flows from mortgage pools (i.e., REMIC assets) in combination with cash flows from interest rate derivatives as recited in claim 27, and, in fact, teaches away from the recited invention in this regard because compliance with current REMIC regulations precludes the use of interest rate derivatives. (See previous Response). Similarly, the other cited portion of *Frankel* (col. 3, line 65 - col. 4, line 47) merely discusses principal only (PO) and interest only (IO) cash flows within a REMIC. It also does not disclose the use of interest-rate derivatives or the strategic allocation of cash flows from mortgage pools with cash flows from interest rate derivatives to create a security that combines the two cash flows. *Goldenfeld* does not cure these deficiencies.

For at least these additional reasons, the Examiner has not factually demonstrated a prima facie case of obviousness for claim 27. Neither *Frankel* nor *Goldenfeld*, whether taken alone or in combination, disclose or suggest all the elements recited in independent claim 27, and thus this claim is allowable over the cited references. In addition, claims 28-30 which depend from claim 27, are also allowable for at least the foregoing reasons and by reason of depending from an allowable base claim. Accordingly, Applicant respectfully requests that the Examiner withdraw the 35 U.S.C. § 103 rejections of all these claims.

In view of the foregoing remarks, Applicant submits that this claimed invention, as amended, is neither rendered obvious nor anticipated in view of the prior art references cited against this application. Applicant therefore requests the Examiner's reconsideration of the application, and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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